

Case No. F3238(C)

REMARKS

Reconsideration of the application is respectfully requested in view of the following remarks.

The invention pertains to the discovery that the extruder as defined in claim 20, not previously thought to be useful for frozen products such as ice cream, can be used with enhanced performance in the manufacture of ice cream. More particularly, the invention pertains to a combination single screw extruder and ammonia cooling liquid wherein the extruding screw has from 3 to 4 thread starts and a pitch angle of between 32 and 42 degrees.

The Rauwendaal reference is cited as teaching a single screw extruder having the recited number of thread starts but without the nitrogen cooling liquid. Fels is taught as disclosing a screw extruder with a cooling circuit comprising liquid ammonia. The Office asserts that it would have been obvious to use Rauwendaal's extruder with a cooling circuit comprising liquid ammonia because Rauwendaal states that "mixing should be done at as low a temperature as possible." The Office also points to teachings of "fruit slurries" in Fels and Rauwendaal. However, it is submitted that viewing the references as a whole, one of ordinary skill would not be led to employ the Rauwendaal extruder in combination with liquid ammonia and that, in any event, applicants have shown an unobvious advantage.

Applicants submit that the Office has not pointed to any teaching by Rauwendaal indicating that his cooler should be used for applications wherein cooling is required

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whereby the product leaves the extruder cooler than when it entered. In this regard, the Office points only to a statement by Rauwendaal in the first paragraph of his column 2 concerning mixing at as low a temperature as possible in the context of a discussion of mixing of molten polymers. That is hardly a teaching of suitability of the extruder for processes at temperatures of the type which are attained using liquid nitrogen. Indeed, the primary application of the Rauwendaal invention is said to be manufacture of color concentrates, polymer blends, and polymer alloys (Col. 1, lines 5-10).

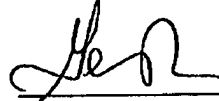
The Office points to Column 14 of Rauwendaal which discusses industrial applicability, in particular a statement that his invention is useful to mix food products such as a slurry of grapes or fruit concentrates. But the Office points to no teaching of use of the invention for foods which are frozen. Nor is it apparent why mention by Fels et al. that their device could be used for certain fruit products which apparently would be frozen in any way suggests that Rauwendaal's device must also be useful for frozen products.

The Office's attention is also directed to the example on pages 7 and 8 of the present specification wherein the lowest temperature for the Ice cream (-14.1oC) is achieved with a pitch angle and number of threads as defined in the present claim 20. Applicants submit that this example demonstrates the nonobviousness of the present invention. The undersigned has been informed that a single degree makes a large difference in the present field.

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In view of the foregoing, it is respectfully requested that the application be allowed.

Respectfully submitted,



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